

REMARKS

Claims 1-10, 12-18, 20 and 21 are pending in the present application. Claims 1, 14, and 16 have been amended, claims 14 and 15 have been withdrawn, and claims 22-26 have been added, leaving claims 1-10, 12, 13, 16-18, and 20-26 for consideration upon entry of the present Amendment.

No new matter has been introduced by the amendments.

Antecedent basis for the amendment to claim 1 can be found at least at page 28, paragraph [84] of the application as originally filed.

Antecedent basis for new claims 22 and 23 can be found at least at page 28, paragraph [84] of the application as originally filed.

Antecedent basis for new claims 24 and 25 can be found at least at page 28, paragraph [84] and pages 36 and 37 and Example 2 of the application as originally filed.

Antecedent basis for claim 26 can be found at least at page 16, paragraph [54].

Reconsideration and allowance of the claims is respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 103

Claims 1, 2, 7-10, 12, and 16-18 stand rejected under 35 U.S.C. § 103, as allegedly unpatentable over Colbert (US 2004/0154264) in view of Lightner, Jr. et al. (US 2005/0126430).

Claims 3-6 and 13 stand rejected under 35 U.S.C. § 103, as allegedly unpatentable over Colbert in view of Lightner et al. as applied to claim 1 above, and further in view of Randall et al. (US 2003/0203191).

Claims 20 and 21 stand rejected under 35 U.S.C. § 103, as allegedly unpatentable over Colbert in view of Lightner et al. as applied to claim 1 above, and further in view of Garnett et al. (US 6,162,511).

Applicants respectfully traverse these rejections.

Graham v. John Deere Co., 383 U.S. 1 (1966), set out an objective analysis for applying 35 U.S.C. § 103(a): “[The] scope and content of the prior art are ... determined;

differences between the prior art and the claims at issue are ... ascertained; and level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined.”

Pending claims of the present application are directed to gypsum boards having a high energy radiation cured coating derived by a high radiation cure of a radiation curable formulation, wherein the radiation curable formulation comprises at least one reactive diluent.

Colbert discloses coating compositions for coating gypsum boards and coated gypsum board products. Lightner et al. teach building articles with bioresistant properties, including coating compositions useful for surface treatment of building articles such as gypsum boards.

Amended independent claims 1 and 16 are not obvious over Colbert in view of Lightner et al. since there is a nonobvious difference between the references and the present claims. Amended independent claims 1 and 16 require that in addition to having the at least one polymer having ethylenically unsaturated double bonds, the radiation curable formulation comprises at least one reactive diluent. According to the specification of the present application, the reactive diluent “can be a low-molecular weight diluent or solvent, which itself preferably is capable of polymerization by cationic or free-radiation pathways.” (p. 28, paragraph [84]) Neither Colbert nor Lightner et al. discloses or suggests the “at least one reactive diluent.”

Specifically, Colbert fails to teach a radiation curable formulation for surface treating of gypsum boards having a reactive diluent. Neither does Colbert disclose any component that can be considered by an ordinary skill in the art to equate to a reactive diluent. The coating compositions used to coat gypsum boards as taught by Colbert comprise:

50 to 85% by weight of calcium carbonate, grain size from 5 to 35 μm , as a mineral filler; 2 to 12% by weight of a binder comprising polyvinyl acetates and acrylic acid esters in aqueous dispersion; 0.5 to 3% by weight of a silicone derivative as a hydrophobic agent; 0.1 to 0.9% of a cellulose derivative of the methylhydroxyethylcellulose type; 0.1 to 0.6% of a slipping agent of the attapulgate type; 1 to 12% of another silicate derivative as an additional slipping agent; 0.1 to 5% of a polycarboxylic acid ammonium salt as a dispersant; 0.001 to 0.015 of an iron oxide as a pigment; 0.1 to 0.3% of a preparation of N-fonroles and isothiazolinones as a biocide; 0.1 to 0.3% of a conventional anti-foaming agent; water up to 100%.

Colbert, paragraph [0035], or

40 to 70% of a mineral filler, such as calcium carbonate; 1 to 10% of hydrophobic surface perlite; 0.1 to 10% of a binder such as polyvinyl acetates and acrylic acid esters in aqueous solution; 0.1 to 10% of a handling agent such as a cellulosic ether; 0.1 to 5% of a slipping agent such as clay; 0.1 to 20% of another silicate derivative as an additional slipping agent, such as talc and mica; water with optional conventional additives up to 100%.

Colbert, paragraphs [0086] to [0094]. Colbert further discloses alternative coating compositions such as “rapid coating” and “setting coating.” The “rapid coating” comprises water, calcium carbonate, fillers, latex emulsion, and other additives such as preservative, and thickener; the “setting coating” comprises water, calcined gypsum, a binder, fillers, and other additives such as preservative, and thickener. (Paragraphs [0057] and [0059]; Tables 3 and 4) It is clear that none of the coating composition disclosed by Colbert contains a component that can be said to be a reactive diluent.

Similarly, Lightner et al. fail to teach a radiation curable formulation for surface treatment of articles including gypsum boards having a reactive diluent. Further, none of the recited components contained in the coating composition disclosed by Lightner et al. can be considered by one ordinary skill in the art to equate to a reactive diluent required by the amended claims. The coating composition taught by Lightner et al. comprises copper oxine, water, latex sealers, and other sealers based on organic polymers or copolymers (including, but not limited to organosilanes, acrylics, acrylic copolymers, polyvinyl alcohol), polyethylene glycol, and the like using organic or water solvents as carriers (Paragraph [0025]). However, none of the other components contained in the coating composition taught by Lightner et al. can be said to be a reactive diluent as required by the claims.

Additionally, Applicant submits that new claim 23 is nonobvious over the cited references since nothing in the teachings of the references leads to the claim. Specifically, the present application discloses that adding a reactive diluent in the radiation curable formulation adjusts working consistency of the formulation and enables the formulation to form a thin, uniform coating on the fibrous facing sheet, and it is important that the radiation curable formulation is essentially free of non-reactive diluents, such as water and/or inert organic

solvents (See, p. 28, paragraph [84]). In contrast, all coating compositions disclosed by the cited references contain water and/or organic solvents. In particular, water is disclosed as a solvent in Colbert (See, paragraphs [0035], [0086]-[0092], Tables 3 and 4); water and/or organic solvents are taught by Lightner et al. (See, paragraph [0025]); Randall et al. teaches an aqueous coating composition (See, paragraph [0023] and throughout the specification), and water is disclosed as a solvent to control viscosity in Garnett et al. (See, col. 4, lines 22-23). Therefore, one skilled in the art would not be motivated to combine the references to obtain the present claims, or any expectation of success in so doing because of the contradictory disclosures between the present application and the cited references.

In sum, there is a nonobvious difference between independent claims 1 and 16 and the cited art. Neither Colbert nor Lightner et al. discloses or suggests a reactive diluent comprised in the radiation curable formulation required by the amended independent claims. Therefore, claims 1 and 16 are not obvious over the cited references. Claims 2-10, 12-13, 20, and 22-26 ultimately depend from claim 1; claims 17, 18, and 21 depend from claim 16. These dependent claims are therefore nonobvious over the cited art.

Based on the above, Applicant respectfully requests reconsideration and withdrawal of the rejections of claims 1-10, 12, 13, 16-18, and 20-22.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' Attorneys.

Respectfully submitted,

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